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(54) IMPROVEMENTS RELATING TO CONFECTIONERY MACHINES

(71) I, COLIN LOUIS LLOYD, of 58 Northway, Sedgley, Dudley, West Midlands, DY3 3PS, a British subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to machines for producing the spun sugar confectionery known as candy floss. Said machines (hereinafter referred to as candy floss machines) include a spinning head comprising an annular cage having a perforated wall, within which is an electrically heated element. In use the head is rotated rapidly about a vertical axis by a motor while granular sugar in the cage is melted by the element and thrown radially outwards through the perforations by centrifugal force to form fine threads. These cool and solidify in the air and are collected as candy floss in a surrounding bowl or other enclosure.

Known spinning heads comprise a heating element formed from bare (uninsulated) resistance wire wound onto a circular former so as to form a flexible annular band which is located between radially inwardly directed flanges of an annular sheet metal cage. A cylindrical wall of the cage between the flanges is provided with slots or other perforations and the element fits closely against this wall. The sheet metal cage is stove-enamelled to provide electrical insulation which will stand up to the heat. If this insulation breaks down the whole head may become live (with possible danger to a user of the machine) and the turns of element wire will be shorted and will probably quickly burn out. It is found in practice that this form of spinning head has a very limited service life, needing frequent maintenance checks and replacements of the element and/or cage. It is difficult to ensure that the cage is evenly enamelled, particularly at the edges of the sheet metal bounding the apertures, and the enamel is easily chipped or damaged. The bare wire element is also liable to damage. Depending on production levels, elements may need replacing

after about two months service, and the enamelled cage may last only about twelve months.

The object of the invention is to provide an improved spinning head which is more durable, safer in use, efficient, and easily serviced.

According to the invention there is provided a spinning head for a candy floss machine comprising a cylindrical fine mesh woven wire cage and annular heating means formed from a sheathed electrically insulated element fitting within the cage.

Preferably the cage is formed from uncoated stainless steel wire and the element is arranged as a helical coil concentric with the cage axis and in peripheral contact with the cage wall.

A preferred embodiment of the invention is now more particularly described with reference to the accompanying drawings wherein:

Figure 1 is a perspective view of a candy floss machine incorporating the invention; and

Figure 2 is an exploded detail view of the spinning head of the machine.

The candy floss machine is provided with a conventional bowl 10 and drive motor assembly 11 for rotating its spinning head 12 about a vertical axis.

Head 12 consists of a drum shaped cage, whose cylindrical wall 13 consists of uncoated woven stainless steel wire mesh. The mesh is fine enough to prevent the passage of unmelted grains of granulated sugar while forming threads of the melted sugar of the desired thickness, typically the mesh size is 28 gauge (i.e. 28 per inch) though sizes in the range from 20 to 50 gauge may be used, preferably in the range from 24 to 40 gauge.

Within the cage is located heating means in the form of a helical element 14 concentric with the cage and whose turns are in peripheral contact with the mesh wall 13. This element is of the metal sheathed kind (as used in electric kettles) i.e. its current carrying resistance wire is totally enclosed and insulated from an outer metal sheathing

and hence from the cage and other structure of the machine. Current is fed to element 14 in the rotating head by way of caliper brushes acting on a ring carried on the head shaft (not shown) which are totally enclosed beneath bowl 10. The voltage and/or wattage are selected according to the service requirements and the volume of production required. A typical element might be one thousand watts at a voltage of 220—250 A.C. or D.C., or for some applications 110 volts A.C. or D.C. The actual heat applied in practice will vary according to the rate of production, motor speed, and surface area heated, and can be regulated by control means 20.

In use the granular sugar, which is fed through a central opening in a top plate 16 of the cage, contacts element 14 and melts so that it can flow through the adjacent mesh under centrifugal force to form the sugar threads. Any localised accumulation of sugar on the head will be safely melted or burnt off without damage to the element, and if the mesh wall 13 becomes clogged with solidified sugar this will be melted and cleared by heat conducted from the contacting element 14. It is believed the arrangement described will be far more durable than the bare-wire type of element, and it is hoped to provide a minimum service life of about twelve months, and possibly up to two years or more, without need for replacement of these components.

This invention also provides a spinning head which is much more speedy and effective in operation and which can readily be dimensioned to suit a wide range of production requirements, for example if speedy high-volume production is required two elements as referred to above could be arranged coaxially one above the other in a longer cage or pair of cages.

WHAT I CLAIM IS:—

1. A spinning head for a candy floss machine comprising a cylindrical fine mesh

woven wire cage and annular heating means formed from a sheathed electrically insulated element fitting within the cage. 50

2. A head as claimed in claim 1 wherein the wire is uncoated stainless steel.

3. A head as claimed in claim 1 or 2 wherein the mesh size is in the range from 20 to 50 gauge. 55

4. A head as claimed in claim 1 or 2 wherein the mesh size is in the range from 24 to 40 gauge.

5. A head as claimed in claim 1 or 2 wherein the mesh size is substantially 28 gauge. 60

6. A head as claimed in any one preceding claim wherein the heating means is in contact with the mesh gauge wall.

7. A head as claimed in any one preceding claim wherein the element is formed as a helical coil concentric with the cage axis. 65

8. A head as claimed in claim 7 wherein said coil is in peripheral contact with the mesh cage wall. 70

9. A candy floss machine comprising a spinning head, a drive motor operable to spin the head rapidly about a vertical axis, and an enclosure in surrounding relationship to the head wherein the improvement comprises forming the head as a cylindrical fine mesh woven wire cage having annular heating means formed from a sheathed electrically insulated element fitted within the cage. 80

10. A spinning head for a candy floss machine, substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

11. A candy floss machine substantially as hereinbefore described with reference to and as shown in the accompanying drawings. 85

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